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Umbellularia.

OF the Laurel family some fifty genera and nine hundred species are distinguished. These are chiefly tropical, and are American, Asiatic, Australian and Polynesian. A few species are found outside the tropics in southern Europe, the Canary Islands, south Africa, New Zealand, and North and South America. The species are mostly woody, and are distinguished by minutely punctate alternate simple leaves with entire margins. The flowers, which are always minute and are perfect or dicœcious, are usually arranged in umbellate clusters or cymes, the perianth, which is generally white or yellow, being composed of four or six sepals; there are no petals, numerous stamens in three or four rows, the anthers opening by one or two uplifted valves, and a single style and stigma. The fruit is fleshy and berry-like, or rarely drupaceous or sometimes dry, and is always indehiscent. The plants of this family secrete in the bark and in the glands of the leaves and flowers a pungent volatile oil which has stimulating or sedative properties. To it is due their chief value to man, although many of the species produce timber of great strength and value, and Persea gratissima, a native of South America, yields a large, succulent fruit—the avarcado or alligator pear—for which this tree is cultivated in all tropical countries. To this family belong the Cinnamon-trees cultivated in the tropics for their fragrant hot, sugary bark, and the Camphor-tree, a native of China and Japan, cultivated in the far east for the colorless volatile fragrant acrid oil, the camphor of commerce, which is distilled from the wood. To this family belongs, too, the Laurel of southern Europe (Laurus nobilis), one of the plants called Daphne by the ancients, the reward of the victor, and still the best ornament of the gardens of southern Europe. A tree of the Laurel family (Nectandra Rodiæri), a native of Demarara, produces greenheart, one of the most valuable tropical woods known to the cabinet-maker; the Brazilian Licaria Guayanensis yields pepper-wood, so called from the pungent character of the dust made in working it; and Persea Indica, the so-called Madeira mahogany of commerce.

With the exception of Japan, temperate North America is probably richer in species of Lauraceæ than other extra-tropical regions. In the eastern United States five genera are represented by seven species. The best known of these is the Sassafras, one of the most beautiful trees of our eastern forests, which it inhabits from New England to Texas. No tree is so often mentioned as the Sassafras in the annals of the early travelers in America, who imagined it one of those spice trees of the east which fired the imagination of Europe in the fifteenth and sixteenth centuries; and many expeditions were fitted out for the purpose of gathering the bark and roots of this tree. The family is represented, too, in eastern America, by the Red Bay (Persea Carolinensis), a handsome, small tree of the maritime region of the southern states, well known for its beautiful, bright red heart-wood; by the Lance-wood (Nectandra Willdenoviana), a tropical American species found also on the coast and islands of southern Florida; by the familiar Spice Bushes (Lindera and Litsea), and by the curious leafless parasitic climbing Cassyta of southern Florida. In the forests of Pacific North America, Lauraceæ is represented by a single species, Umbellularia Californica, the noblest member of the family in North America, and one of the most beautiful evergreen trees of the north temperate zone.

The genus Umbellularia, established by Nuttall and still only represented by the California Laurel, is distinguished by its perfect flowers, borne in stalked terminal and ultimately axillary umbels, which are included before expansion in involucres composed of four broad deciduous bracts; by a six-parted deciduous calyx, nine stamens inserted in three rows, those of the inner row being furnished with a fleshy gland on each side of the base, alternating with three staminodia, four-celled anthers, a dilated stigma, and a dark purple sub-globose drupe an inch in length, and surrounded at the base by the thickened remnants of the calyx. The leaves, which are lanceolate-oblong, are sometimes four inches in length, and are dark yellow-green and very lustrous; they are delightfully fragrant, although exceedingly acrid, and give off when bruised a pungent effluvium which excites sneezing. The California Laurel has been referred by botanists to a number of different genera, and to the people of California it is known also as Mountain Laurel, Spice-tree, Cajiput, California Olive and California Bay-tree.

Umbellularia is common in all the coast-region from southern Oregon to the southern borders of California, and it is not rare on the western slopes of the Sierra Nevada Mountains. In the valleys of Oregon and northern California, in rich soil and in the neighborhood of streams, the California Laurel is most abundant and grows to its greatest size, rising sometimes to the height of a hundred feet and making tall stout stems five or six feet in diameter. At the north it sometimes forms forests, either growing by itself or in company with the great Oregon Maple (Acer macrophyllum). In central and southern California, especially when it grows beyond the coast-region, the California Laurel is a smaller and often a bushy tree, which only in old age assumes the spreading habit and forms the graceful head peculiar to fine specimens of this species.

The value of the California Laurel as an ornamental tree is very great; the forests of Pacific North America do not contain another tree better suited to adorn the parks and gardens of that state, and certainly the most beautiful gardens in California are those in which single specimens or groups of this tree were left when the indigenous growth was originally cleared away. A view made of such a garden by our obliging correspondent, Mr. Edm. L. Woods, of Sau Francisco, appears in the illustration on page 355 of this issue, in which may be seen a plant of Umbellularia with

the habit which it assumes when it has grown in the open ground and the development of the lower branches has not been interfered with, and which is quite different from the stately, long massive-stemmed habit it assumes in the dense forests of southern Oregon.

As a timber-tree Umbellularia is extremely valuable. No other Pacific-coast tree produces such valuable timber for the cabinet-maker and joiner. The wood is rich light brown, heavy, hard, very strong, and close-grained, the satiny surface, often marked by contorted and twisted grain, being susceptible of receiving a beautiful polish. It has been much used in California for furniture and the interior finish of dwellings, and in Oregon for the cross-trees, cleats, bits and jaws of ships and boats.

It would be interesting to know if this tree, which was transported many years ago into the gardens of Europe, has succeeded in establishing itself anywhere beyond the region of its home. It might be expected to flourish in southern Europe, and to surpass the true Laurel there in size and beauty; in some parts of India and Australia, and in southern Japan, we should expect also to find Umbellularia growing into a stately and beautiful tree, although it is in California, no doubt, that it is destined to play its most important part as an ornamental and as a timber tree.

A critical examination of several parts of the Central Park in this city shows that the ten thousand trees which the managers claim that they have removed during the last three years are not missed, and that their removal has left no unsightly gaps. Indeed, the park is still so overcrowded with trees that it is difficult to realize that its plantations have ever been thinned. The park, as a work of art, is suffering because surplus trees are filling up the open glades and recesses of turf along the drives, and are gradually cutting off all the vistas which gave the landscape variety, mystery and interest. For this reason the park is becoming, every year, more and more of a wood, and less of a park, as it was originally designed. But more important than the loss of design, which can always be restored in a comparatively short time, is the danger of ultimate ruin to all the trees in the park by overcrowding. In every direction short-lived, misshapen, scrubby or half-dead trees are using up the light and air and soil needed for better specimens which would last for a century if they were allowed the chance to grow. It is probably not an exaggeration to say that the park and its plantations would be immensely improved by the immediate removal of one-half of the total number of trees now growing in it, and that six months after they had been cut, not one person in a hundred thousand visiting the park would miss them or realize that the axe had been at work.

For years the trees in the park have been neglected, and they are now beginning to show the effects of this neglect. They were not properly thinned when they should have been, because the commissioners of that time declared that they feared to face the popular outcry against cutting a tree. But in these last years the people of this city have learned a great deal about their park and its requirements; they realize its value now as they have never realized it before; they know more about trees and their needs than they did a generation ago, and the commissioners may be sure that they will be supported in any well-considered and carefully studied scheme for improving the park plantations. They should not allow another winter to pass without beginning a systematic thinning of the trees under their charge, for now that they have become so large and overcrowded, they suffer more serious injury in one year than was possible in ten years while they were still small.

We have heard, from what seems to be a trustworthy source, that the Yosemite Commission has just agreed to pay a contractor $3,000 to "underbrush the valley." Precisely what this phrase means we do not know, but in view of what has happened when zealous choppers have turned themselves loose with axes in that beautiful spot, the news is enough to excite apprehension. Every one who has visited the Yosemite recognizes the singular charm which the beautiful growth of shrubs and small trees gives to it. The persons who were at one time in charge of the valley certainly did not appreciate the value of this low growth and its luxuriant foliage. It is just possible that there is some one now in command who can be trusted to spend money for the "improvement" of the valley in such a way that it will not add to the disfigurement which the place has already suffered, but certainly this is a matter which ought to be discussed and explained. This valley belongs of right to the people of the United States. Its unique beauty and grandeur should be theirs to enjoy, and for their children to enjoy forever. It would be a disgrace to civilization, as well as an outrage upon the plainest justice, if any unskilled hand is allowed to be lifted up against the trees and shrubs of the valley. What the people have a right to demand in such cases is the widest publicity. No one will question that for any alleged improvement of the Yosemite Valley there should be a fixed plan, and that this plan should be published; that no haphazard work should be undertaken; that not a tree should be cut, and not a lane laid out without minute directions and without every needed restriction and protection against possible injury to the beauty of the place.

Let the people know just what is going to be done in the Yosemite Valley, why it is to be done, and who is to do it.

The forty-first volume of *The Garden* is dedicated to our excellent correspondent, Max Leichtlin, of Baden-Baden. In the dedicatory remarks we learn that he was born at Carlsruhe, in Baden, on the 20th of October, 1831. When fifteen years old he became an apprenticed gardener, and afterward held gardening situations at Frankfort, Bolweille and Ghent. Some years of his life were then spent in traveling, and in 1856 he returned to Europe from South America; then, after spending a few months in Dublin, he served for two years in Van Houtte's nursery, in Ghent, which at that time was considered one of the best schools of horticulture in Europe. Leaving Ghent he engaged in the business of paper manufacturing with his two brothers, and for sixteen years devoted himself exclusively to this occupation. Then, having amassed a considerable fortune, he retired to Baden-Baden and founded the private botanical garden which has since made the name of Max Leichtlin a household word wherever hardy plants are grown. No man of our time has introduced so many first-rate hardy plants into cultivation, and no one has been more successful in cultivating and propagating them. Bulbous plants especially have interested Max Leichtlin, and his collection of Lilies at one time was the richest in existence. Afterward he devoted himself to Irises, and has introduced many interesting species. As a raiser and hybridizer he has achieved great success with the Nerines and Aubrietias, some of the best varieties of these handsome genera being due to his patient skill and perseverance. It is to him that gardens are indebted for Jankæa Heldreichi, Ostrowskia magnifica, the largest known Bellflower, Meconopsis aculeata, Tellima parviflora, and a host of other plants, including many Lilies, Tulips, Alliums and Irises, especially of the bulbous and Oncocyclus sections. Max Leichtlin is as generous as he is successful in gardening, and his greatest happiness is found in sharing his treasures with his friends and correspondents, who are always being placed under a debt of gratitude to him, not always easy to repay in kind, as no plant interests him unless it is new or extraordinarily rare, or so difficult to cultivate that everybody else has given it up as hopeless.

The landscape, forever consoling and kind,
Pours her wine and her oil on the smarts of the mind.

—*Lowell.*

Cultivating the Almond in California.

THE estimation in which the almond is held in America is seen from the fact that nearly six million pounds of these nuts were imported in the fiscal year ending June 30th, 1890. They were valued, too, at $813,000, or considerably more than all other imported nuts put together, and this, not because they are the cheapest, for they are the most expensive of imported nuts. There are no reliable statistics of the home production, but the area suited for almond cultivation is confined to a few spots distributed throughout the whole length of California, and it is doubtful if there is enough of it, all told, to supply the American market. In the last number of the *Popular Science Monthly* Mr. Henry J. Philpott gives a description of the processes by which this favorite nut is produced and made ready for holiday tables, from which we condense the following statements:

The trees are all budded or grafted, for although a seedling Almond may be an improvement on the parent tree, it is apt to be worthless, and may be deadly poison. This inclination to sport is seen even in grafted trees, for in Mr. Philpott's orchard, in which the cions were all taken from the most prolific bearers of the best nuts among tested trees, some of them never bear at all, others bear worthless nuts, one yields a nearly perfect peach-pit enclosed in a nearly perfect almond-drupe. The variety known as the California Paper Shell, originated near Mr. Philpott's ranch, is very distinct, although a purely accidental seedling. Its good size, plump kernel, thin shell, sweet flavor and agreeable appearance enable it to command two or three cents more a pound than any other nuts in the market. It is truest of all to the type and most distinct in the form of the tree. Some growers claim that it is less prolific than many other varieties, but others say that it is the most hardy and most prolific as well as the most salable almond grown, and it is predicted that it will drive the foreign nuts out of the market.

The Almond-tree resembles in size and shape, as well as in smoothness and color of the bark, an unpruned Apple-tree, while it is the image of a Peach-tree in foliage and green fruit. The leaf is so exactly like that of a Peach, to which it is nearly related, that a casual visitor can scarcely distinguish them. The same is true of the fruit in a green state, which is a peach in taste and smell. The Almond is commonly grafted on Peach-stock, and an orchard of these trees in bloom is a thing of beauty.

The cultivation of the Almond is very easy. The orchard is plowed and harrowed once or twice a year, and then the weeds are kept down in the easiest manner possible, but the tree is never pruned, and the fruit is never thinned, both of which operations cause great expense in the cultivation of other orchard fruits, while so far it is infested with no parasites, and the grower is not at the expense of buying and applying insecticides or fungicides. First to bloom in the spring, the Almond is the last to mature in the autumn. All summer long the fruit hangs, the image of a green peach, and after the first few weeks never increasing or changing in appearance. Late in August the seam, which is rather deeper than in most peaches, will open in a few of the earliest, and then the growers are anxious to know whether the almonds will open and remain open, or whether the drupe will remain closed, or will open partially and then close tight, for the whole profit of the crop may depend on the behavior of the fruit in this respect. It may cost half of what the crop is worth to pick and husk it.

The nuts are knocked off of the tree with long poles, and if they are well open they are allowed to drop on the bare ground and are husked as they are picked up. Those which do not open are husked with the fingers. The variety mentioned above is one of the freest, and its drupe often falls off spontaneously and leaves the naked nut hanging to the tree. But the nut so freed from the drupe clings tightest of all to the stem and is often hard to knock down without injury to the branches. In the best of seasons a large part of the crop is so badly opened that a canvas is spread under the tree for the nuts to fall on. When all are knocked down the canvas is rolled up and carried to a place where there is a simple table of boards. One picker rubs the nuts to loosen the drupes, and the others husk. The rubber is practically two old-fashioned washboards which slide over each other. The machine is a flat-bottomed trough, six or eight feet long, and open at one end, across the bottom of which pieces of lath are tacked an inch apart. The nuts are scooped in, a few pounds at a time, and a shorter board, also ribbed crosswise with lath and handled like a flat-iron, is rubbed over them, loosening their husks and pushing them toward the open end of the trough, where they fall into a box to be husked. In larger orchards more complicated machinery is operated by horse or steam power, but the drupes and nuts are still separated by hand. The drupes are generally only loosened by the machine; few of them are rubbed completely off, because, if force enough were employed to remove the drupe, it would break the shell; therefore, in many orchards this year, the only way to market the almond was to crack it with the drupe on and sell the kernel.

Picking and husking almonds costs from $50 to $100 a ton, after which the nuts are sent to be dried and bleached with the fumes of sulphur, a process which requires care and experience. If this is done well and the nuts come out bright and evenly bleached the grower is satisfied, for he knows that it is the color which sells his almonds. It is claimed that fruit, such as apricots and apples, which is sulphured is poison, and yet unbleached fruit will not bring living prices. It is not probable, however, that sulphuring, as it is conducted, is of any real injury even to evaporated fruit, but in the case of the almond it is only the shells that are colored. As a rule, the harder the shell the whiter the almond will bleach, although this new Paper Shell of California will bleach the whitest of all.

When cured for market, the nuts are stored and shipped like barley, in coarse gunny-sacks, and although a single sack costs but seven or ten cents, the whole expense is a burden on California producers to the amount of $2,000,000. Where grain has to be handled from five to ten times before it reaches the consumer, and all grain is shipped from the Pacific ports in this manner, the sack is a still more expensive crudity, and the grain-grower loses by it ten per cent. of his gross proceeds. But the burden on the Almond-grower is trifling, one per cent. perhaps of the gross product, and the sack is altogether an advantage, for it saves the delicate shell and furnishes a place for the brand of the orchardist, who is proud of his product and wishes to work up a reputation for it, and it also gives an opportunity for naming the variety contained in each sack.

The practical question confronting each prospective orchardist is, How soon will trees come into bearing and pay expenses and interest on the investment? Some old men who have tried it conclude that too much planting for posterity is mistaken kindness, for which posterity, lying in the shade, kicking up its heels and letting its faculties rust for want of some planting to do, returns no thanks. But the Almond is an early bearer. At four years, from seed, Mr. Philpott's orchard yielded $80 per acre gross, say $60 net. This year, at six years old, with prices considerably below the average, the proceeds will be $125 an acre. Few orchards have yielded so much per tree of the same size, but these trees are so wide apart that there are only half the usual number to the acre. While the trees are small, this tells against the yield per acre. In a general way, it may be said that an Almond-orchard yields as quick a return as a herd of beef-steers, and at the same time the planter does not lose the use of his land. He plants other crops between the rows, but, of course, no ordinary annual crop will yield a profitable return from the price he must pay for land known to be adapted to almonds. The almond, most precious by weight of all orchard-products, involves less labor, care, anxiety, expense and skill than any other, excepting, perhaps, the Prune. In recent years it has never yielded the fabulous returns realized by the growers of some other fruit or nut. It never yields, as an Orange-orchard has, a competence for life in a single year from ten acres. Its reasonable expectations are about $100 net per acre.

Wild Flowers in Italy.

ABOUT the 20th of May the Italian summer overtakes us on the hill-top where this city sits. We do not then, however, experience its full power, the still, steady fervor which July has in store, but merely the soft freshness of a perfect New England June, in response to which millions of Roses break bud and send gentle waves of perfume all through the ancient city. Roses are there everywhere. Enter a shop in the busiest street, and a great Maréchal Niel nods at you through the open window at the farther end. Pause before the open door of a frowning fourteenth-century palace, and across its paved court-yard you see a tangle of cream and crimson blossom. For there is here none of the prim formality of an English garden of "standards"—a collection of walking-sticks supporting a half dozen overcultivated flowers.

These bushes and vines were freely trimmed by their owner last autumn, no doubt, but it was in self-defense he did it; in protection of his right of way along his own garden-paths; and in spring they show a wealth of healthy green, and blossoms which rival in number, size and perfection any prize collection at an English flower-show. It is all due, of course, to what Mr. Cable's engaging heroine called "doze climéd," and if climate can do all this for us within city walls, what need to wander restlessly abroad, exploring country roads and lanes? Yet such strolls when the afternoon shadows have grown long, and the afternoon breeze comes breathing up over the piny hills and poppied fields from the unseen sea, are very wholesome both for mind and body, especially the former; and out in the open country we find a most rich and varied vegetable life; old friends whose welcome is sweet, new faces with whom one longs to make closer acquaintance.

But, alas! you will, to carry on the metaphor, find it next to impossible to procure a proper introduction to these rustic beauties. Their very names, for the most part, will remain unknown. I do not think there is such a thing as a handy botany of this district, and to the average Italian of the lower class wild flowers are objects which it would be beneath his dignity to observe too closely. Show him an Iris, and ask him how it calls itself in Italian. Giovanni will cock his head on one side, ponder sagely, and, four chances out of five, pronounce it a rose. "Angiolina," I asked the other day, as she and I were passing a clump of the great, pale lemon-colored Dandelions of the region, "what is the Italian name of those flowers?" She looked at me bewildered. "Signorina, I haven't the remotest idea." Not to be discouraged, I pursued my catechism. "Do they ever grow any larger than those?" They were full two inches in diameter. "Oh, yes, signorina," she replied briskly, "much larger; and then," triumphantly, "we call them Sunflowers."

When one is thwarted in this fashion in the pursuit of knowledge it is better at once to renounce the vain thought of imparting useful information, and only repeat to those who may be disposed to give them a practical trial some of the suggestions which this country-side calls up.

The field at your left is dyed deep crimson with the splendid-spiked blossoms of the Sainfoin, or dark red Trefoil, long a favorite in France, and sown in greater quantities every year both here and in England, where enthusiastic praise is bestowed on its virtues as fodder, whether green or dry. I think it might prove of practical value to our serious farmers, but let the amateur, at all events, try a belt of this Clover on the dubious boundary between his lawn and mowing-field, sowing thickly in early spring. Let him be careful to get the true crimson variety, and not that which flowers rose-pink, and after watching its rich green growth and the opening of its close-set sturdy heads, I will predict that, if he rejects the Sainfoin as a crop, he will keep it up as an ornament.

Now lean over the hedge, and continue the line of your meditations. The lane you are following winds steeply up a hillside, and between its boundary hedge and the level of the field beneath there is an almost perpendicular drop of eight or nine feet, and on this abrupt slope a dozen sorts of grain and tall blossoming grasses are nodding their heads in enticing confusion, completely veiling it with a covering delightful to the eye of the casual observer. Is not this a suggestion for that terrace front beyond the garden, to which the hose will not reach and which always turns brown so early in the summer? You may not succeed quite so well in your combination as nature does after a century or two of self-sowing; but an average seed-chest has resources which are not to be despised, and with a little patience these may be most effectively supplemented by our beautiful wild grasses, and the bank thus laid down will be an inexhaustible resource for your flower-jars. I remember certain narrow, deep-cut, Beech-shaded lanes in Surrey where native grasses were said to have been systematically sown some years before, with the most beautiful result at the time I wandered there.

And here I would like to put in a plea for the formation amid so many Societies for Rural Improvement, of one for the Preservation of Lanes. Broad ways, between unbroken lines of evenly spaced Maples or Elms, and trim bands of close-cut turf are pleasant and desirable in their place, and their place is a large one; but there should be room as well for the narrow winding lane where the horses walk rather than trot, and the air always bears some woodland scent—the spicy fullness of the Pines, the delicate sweetness of the wild Grape-bloom, or the pungency of the Barberry; where the Birches leave room for Sumac and Blackberry vines, and the Asters and Golden-rod blow no less bravely because Columbine and Violet have preceded them.

I would have my society do something also for the bare "cuttings" and dreary borders left along new roads, assisting nature in her slow business of clothing them gracefully. Its province, and that of the road commissioners, should be clearly defined and separated, and it should be composed of members all ready to take suggestions from nature's methods, and to try perpetual experiments in the introduction of the wayside beauties of other lands; content to have a dozen fail if one may but succeed. Let us see what can be done with some of the wild Roses of Switzerland, above all that tall, red-stemmed bush which bears flowers of a deep Jacqueminot crimson, among its blue-green leaves; or, to come back to this Tuscan country, with the pure white Sweet-brier, which grows luxuriantly hereabout by the side of the common pale pink variety. And one or two of the sweet-scented Honeysuckles which gush over these hedge-rows, intertwined with a Clematis which I have seen rioting at home, could they not be coaxed to endure the New England climate? Certainly there are places in America where the Rock Rose might be enticed into springing, as it does here, from the face of the most incurably barren cliff, and where the yellow Tulip and lavender Iris might follow the line of some meadow causeway. Let us have, too, the hardier Thorns, both for the sake of their spring blossoms and their winter haws, and there is a species of ground Holly, with a showy scarlet fruit, nearly as large as a small cherry, which is warranted to render any spot inaccessible to marauders, and might be found useful as well as ornamental. There is also the pale, primrose-colored Dandelion, of which I have spoken before. It is a gorgeous flower, but I cannot give it a first-rate moral character. It is undoubtedly a sybarite, and rather than lead an honest independent roadside existence, it clings to the luxuriant life of the market-garden, and prefers to hang on to the skirts of society there, even at the perpetual risk of being ignominiously expelled.

A little later, when summer is at its fiercest here in Tuscany, our lanes will blaze with the most superb Thistles, high and low, big blossoms and small, single flowers and clustering heads, bright blue and royal purple, silver-white and tawny orange; but the Thistles, too, shall be left undisturbed, and, indeed, our Asters and Golden-rod give much the same range of blossom-color, though their foliage cannot be compared with the sculpturesque and highly decorative leaves of the Thistle. It occurs to me, however, that by insisting too much on the æsthetical properties of the Thistle I may weaken in the eyes of the gardener at home the force of my practical suggestions, so I will close these desultory remarks before compromising myself further.

Siena, Italy. *Louise Dodge.*

A Bed of Hardy Perennials.

"THE well-furnished garden should be gay with blossom throughout every month of the growing season."

This axiom being indisputable, we have suddenly awakened to the conviction that our garden is deficient in midsummer attractions. A few Roses are blooming for the second time, notably Madame Alfred Carrière, which is making a display that would be very creditable even in early June, and that is worthy of all praise in this sultry July weather, and Madame Georges Bruant, which is almost as lavish of flowers as its more graceful neighbor.

The long borders behind the house are very gay with Geraniums and sweet with Heliotrope and old-fashioned annuals, and in the shrubberies are many tall, cool-looking Hollyhocks, pink and white and mauve, with double and single flowers, with groups of various Hypericums, whose yellow flowers are most acceptable and cheerful. But with all the lavish beauty of Trumpet-creepers, beloved of humming-birds, and Clematis of many kinds, we feel that there is something lacking, and are conscious that we have sadly neglected two very valuable classes of midsummer flowers. These are the herbaceous perennials and the newer annuals.

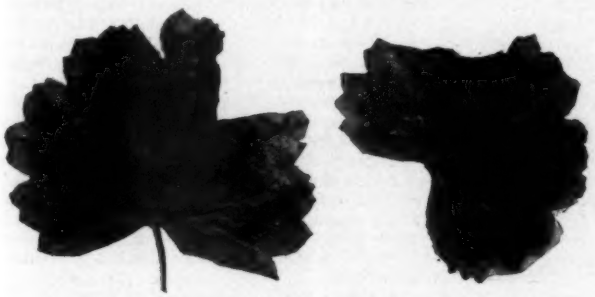
The truth is that our devotion to trees and shrubs has been so faithful and absorbing that we have had no time to spare for the humbler denizens of a "perfect pleasaunce." Now, however, that we are awakened to a sense of our deficiencies we have turned our attention to our nearest neighbors in marsh and meadow, and are trying to induce some brilliant blossoms near at hand to be content with a change of residence from field to garden-border. We have taken up large clumps of Asclepias tuberosa in full bloom and transferred them to our shrubberies. Any one who has tried to move these handsome plants on a sultry day in July will doubtless remember the undertaking. Almost inconceivably long and tenacious are the roots, which they thrust into the rocky soil. It was

almost an impossible task to carry out my instructions that the plants be removed with earth about them and with unbroken roots. Of five clumps planted a fortnight ago only one is in a flourishing condition at this time.

Much better fortune has attended a large bed of late-blooming perennials planted a few days ago. These came from Mr. John Saul, of Washington, a careful grower of everything a garden ought to possess.

Our summer hammock swings from two large Oak-trees on a little eminence which commands a wide view of field and wood and mountain-range on one side, the grove, with its winding roads and shady glimpses, on the other, and a smooth expanse of shrubbery-bordered lawn just in front. At the extremity of this little lawn is the new bed, already interesting with many blooming plants. These were carefully packed and sent with balls of earth around the roots, and cool damp moss to refresh them during the journey. They were at once transferred on a cloudy afternoon to their permanent resting-place.

This morning the tall-blooming Phloxes are as fresh as Phloxes can be, and seem to be gazing with wide-eyed approval at their new surroundings. Unfortunately there are many undesirable colors among the flowers of Phloxes, and it is very difficult to group them effectively. Among our scarlet Geraniums at the back of the house, the magenta and solferino of some ancient Phloxes that will not die are very incongruous, and I frequently take myself to task because I lack spirit to exterminate them. But they are relics of the past, and were familiar to my childhood, and so, from year to year, they are allowed to injure the color-effect of our Geranium-bed. The new Phloxes just received are in softer shades; some are pearly white and others a faint pink with darker eyes. All these are grouped together, apart from other plants, and are best so, belonging as they do to such a very exclusive family.



Blighted Leaves of Pelargoniums.

The Blackberry Lily, Pardanthus Sinensis, which was in bud when it came, has opened a few handsome blossoms, and the Campanulas and Platycodons are beginning to flower afresh. A very few of the new plants are drooping. We water them in the twilight and shade a little during the day. The weather is warm and unfavorably dry, yet we have every reason to rejoice in the success of our experiment.

The new Yarrow, or Achillea, called the Pearl, is blooming profusely, and does not seem to recognize any difference between the nursery in Washington and the garden at Rose Brake.

Rudbeckias are charmingly bright and saucy, and a Sedum labeled Sedum Silskanum, which is new to me, is showing a few yellow star-shaped blossoms.

This bed is very conspicuous from the hammock, and will, no doubt, be a constant source of pleasure as the plants increase in beauty day by day.

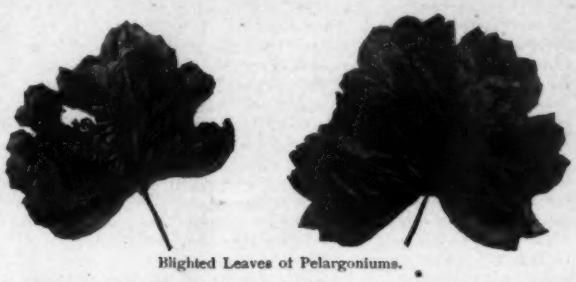
Rose Brake, W. Va. *Danske Dandridge.*

Cultural Department.

Blights of Variegated Pelargoniums.

GARDENERS are getting shy of some of the variegated plants. Last evening, while talking with a large grower of foliage plants, it was learned that he had discarded some of the plantain Lilies, and particularly the Funkia undulata, var. variegata, because they blight so badly. Such plants will do well for a part of the season, and as soon as the more trying days of midsummer come, they become unsightly and worthless.

Attention at this time is called to a similar behavior of the variegated Pelargoniums. Some of these are very showy border-plants, so long as they remain in good health. Under the most favorable circumstances, plants of these variegated sorts may retain their handsome foliage, but as a rule the leaves become blotched and brown. While there is no doubt that variegated plants are abnormal, in so far as their chlorophyll or "leaf-green" is reduced, and, therefore, less able to



Blighted Leaves of Pelargoniums.

compete with ordinary plants in the making of food out of the crude materials of the soil and air, it is likewise an observed fact that such plants fall more easily a prey to the attacks of parasitic fungi. In short, a variegated plant is inherently weak, and, therefore, less able to resist the enemies that are constantly lurking without.

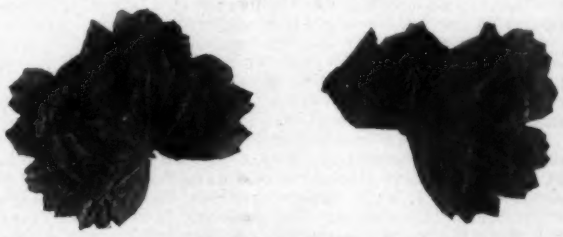
It is regretted that the photographic art does not show all shades of color in the pictures of variegated leaves. If the engraving could fully present the colors, the reader would not need to be told that the blighted portions of the several leaves shown are invariably upon the white or etiolated parts of the foliage. Upon these light areas the fungi, of which there are two, usually vieing with each other for the blanched territory, establish themselves and then spread to other and green parts of the leaf. These two fungi are indistinguishable except with a microscope. One of them is a member of the genus Ascochyta, and may be termed a genuine leaf-blight; the other is an anthracnose, and belongs to the genus Collitotrichum. It is difficult to convey an adequate idea of the structure and habits of these fungi without engravings to accompany the text. This is not the purpose of this article, but, instead, to account for the blighting of the Pelargonium leaves, which is due to these low forms of parasites being favored in their development by the blanched or non-green condition of parts of the leaves. Spraying with fungicides would doubtless assist in checking the growth of the fungous enemies.

Rutgers College. *Byron D. Halsted.*

Notes on Shrubs.

IT is never safe to draw conclusions from or pass judgment upon one or two specimens of any species or variety of tree or shrub, or, indeed, of any other plant. This is especially true in testing hardiness, longevity, habit, productiveness or free-flowering character. When plants are received from nurseries it often happens that all the individuals of a kind are the progeny of one particular plant, and this may have peculiarities which are not common or typical to the species or variety as a whole. The variability shown in a large series of seedlings is often very interesting, and the extremes are frequently so different as to suggest the need of separate names. Indeed, such extremes have often been described as distinct species.

A look over a lot of seedling plants of our pretty and fragrant-flowered Rhododendron arborescens, or smooth Azalea of the Alleghany Mountain-region, exhibits marked variability



Blighted Leaves of Pelargoniums.

in certain directions, and shows how a purchaser of a seedling plant might get one which did not fulfill the expectations raised by a description of it. The flowers vary in color on different plants from a pure white to a very appreciable rosy tinge. There is a good deal of variability in the size of the

blossoms, but the abundance or scarcity of bloom on different plants is still more marked. Certain plants appear to have the habit of flowering much more freely than others, and of bearing the blossoms well above the foliage, which last is a result of less vigorous new growths or the habit of the plant to put its energies into the flowers instead of devoting them to the formation of long new shoots. Ordinarily, and when less abundant, the flowers of this species are somewhat obscured by the new growths and foliage. The botanist, of course, will find much variability in the minor details of the leaves, flowers, etc., but these are not generally interesting to the horticulturist.

R. arborescens has been compared with our northern Clammy Azalea (R. viscosum), and in some respects they are somewhat alike. The flower-buds of both are covered with hairs which are tipped with dark-colored viscid glands, but, as a rule, these hairs are most abundant on the Clammy Azalea. Great numbers of minute insects are often ensnared by the sticky secretion of the glands. The buds of both species are about the same length, but those of R. arborescens are stouter, and when they open the expanded blossoms they appear much larger than those of the other species, and this adds greatly to their beauty. While the stamens of the Clammy Azalea are usually white, with the pistil sometimes reddish, the stamens and pistils of R. arborescens are of a bright deep rosy red color, which is well set off by the white corollas.

It has been stated that these two species of Azalea are marked by a difference in the time of blossoming, and in the main this statement is quite true.

This season R. arborescens began to blossom here about the 20th of June, while the first flowers of R. viscosum did not open until quite ten days later. R. arborescens is now (July 19th) quite generally without a flower; but, among probably over a hundred plants raised from seed, there are two which are just in their very finest condition of bloom, being quite as late as any R. viscosum. Where lateness of flowering is a desideratum, such individuals as these might be well worth propagating if they are any improvement on the best-selected forms of R. viscosum; poor forms of this species are not worth a place in the garden, and are, perhaps, quite as variable as R. arborescens. Where a large number of seedlings can be seen together there will appear even a greater difference between individuals in thin foliage. The differences in foliage have been noted by botanists. A very common form has the leaves green on both surfaces, but a great many plants have foliage which is quite glaucous beneath, in which they resemble R. arborescens, while occasional specimens have the leaves glaucous on both sides. The leaves vary from being perfectly smooth on both surfaces on some plants, to those which have the upper surfaces of the leaves and the midrib beneath thickly covered with very stout appressed hairs or bristles, which are bent toward the apex of the leaf. The young shoots of this Azalea are clothed with stiff hairs, which are bent toward the end of the shoot, and this character is at once the best in distinguishing it from R. arborescens, in which the young shoots are quite smooth. In the best forms of the Clammy Azalea the flowers are about as large as small or medium-sized blossoms of the other. The plants are inclined to grow tall without spreading greatly, while those of R. arborescens in cultivation here, now eleven or twelve years old, from seed, are of a more dwarf, compact habit, with a spread of branches as great as the height, which is from three to four feet. Any peculiarly fine form of these Azaleas is much better propagated by layering than by any attempt at grafting by an amateur. R. viscosum is now sometimes freely used as a stock upon which to graft garden varieties, but it appears to have an annoying tendency to send up suckers.

Our Purple Azalea, or Pinxter-flower (R. nudiflorum), is well known for the variability in color of flowers which different plants exhibit in a wild state. By selection we may get plants of this species with flowers almost white, varying through flesh-color to pink or purplish.

The pretty R. Vaseyi has been described as having flowers of a bright pink color, but a look over a lot of seedlings when in blossom in May shows much variation in the shades and depths of color, while several individuals here bore flowers which were almost white. An amateur horticulturist, who obtained through the Arboretum one of these seedling plants before it blossomed, expressed great disappointment that when it bloomed its flowers proved to be white instead of the bright clear pink which was desired. Such tendencies to variation among the different individuals of the several species of these pretty flowering native plants show very clearly that it is sometimes necessary to grow more than one seedling from a parent plant in order to exactly reproduce it in some desirable even though typical, character, and that propagation by some form of division is the only safe and reliable way to perpetuate any peculiar characteristic.

Arnold Arboretum. *J. G. Jack.*

The Water Garden.

THE Water-lily ponds and basins are now the most delightful spots in the garden. Growth was somewhat retarded during the cold, backward spring, and this has had a marked effect on some plants, but the latter part of June was most favorable to their growth, and the result is at the present time a gorgeous display of all the hardy Nymphæas which come in for first honors. Nelumbium speciosum follows hard after them, its first flowers opening the second week in July, but they will be at their best when some of the hardy Nymphæas are past. The new varieties of the latter are rapidly increasing, and so is public appreciation of them, for the supply has not equaled the demand this spring. Besides the sorts of sterling merit described by Mr. Gerard in the issue of this journal for July 13th, I would mention Nymphæa Marliacea rosea as worthy of a place in every collection where even a few can be grown. The plant is vigorous, resembling N. alba in style of growth; the flowers are freely produced, and until late in the season its lovely cup-shaped flowers on opening are a tender rose color several shades deeper than those of the variety Carnea. When fully expanded the petals are much lighter, but they retain their color at the base.

The variety Exquisita, of N. odorata, has flowers more deeply colored than any other hardy Nymphæa. These flowers are large, of rich rosy carmine, and with delicious fragrance. The leaves are green on the upper surface, and intensely red on the reverse.

I consider N. odorata sulphurea one of the very best new hybrids. The plant is very vigorous for the odorata type; its large cup-shaped flower, standing out of the water, resembles a Lotus-flower in the distance. The color is more accurately described as a canary than as a sulphur yellow. It has light golden stamens, and petals narrower than those of N. chromatella, but longer and more numerous, while it retains the fragrance of N. odorata. The leaves are reddish on the reverse, heavily blotched with reddish brown. It flowers freely, and is a great acquisition.

Nymphæa pygmæa helvola is another hybrid of special merit. The flower is about three inches across, sulphur-yellow; petals longer, narrower and more pointed than those of N. pygmæa alba; the leaves deep green, blotched with reddish brown. It will be found very useful for tubs or small aquariums.

Nymphæa Laydekeri rosea is larger than the preceding variety, but is a most worthy novelty of the Pygmæa type. The flower on opening is a delicate pink, and the second day it is many shades deeper, the sepals retaining their whiteness. The stamens on the outside ray are rich yellow, while the centre ones are orange—a most pleasing combination of color. The third day the flower assumes a deep rose color. The plant is stronger than the type, and very free-flowering; it frequently shows flowers with all these different shades of color at once, as some of them open almost daily. These different colors are distinct enough to give the plant a novel appearance, as they inevitably suggest two or more kinds of flowers from one root.

Dongan Hills, N. Y. *W. T.*

Alstrœmeria aurantiaca.—The Amaryllis family is well represented in our gardens, but the genus Alstrœmeria, which belongs to it, has few representatives in American gardens. The reason for this is that many of the species are too tender to endure our severe winters. One of them, however, grows vigorously here, and makes one of a group of striking beauty. A. aurantiaca is still flowering here, and only requires a covering of dried leaves in the winter. Three years ago I received two small tuberous-rooted plants, which I planted in a sheltered position in good deep sandy soil. They have grown so vigorously that they cover a space of three feet in diameter. I know several gardens where this plant has failed, but the reason of this is, without doubt, an unsuitable position or unsuitable soil. It is an important point to plant the tuberous roots deep in the soil, where the frost will not get to them. After they are established they should not be disturbed often. This Alstrœmeria was brought from Chili in 1831. It grows about four feet high, and the stems are so stout that if it is grown in a sheltered position they do not require staking. The leaves on the stem are lanceolate-obtuse, and the petiole has a peculiar twist which inverts the leaves. The blossoms are large, orange-colored, streaked with red, and are produced in umbels of from twelve to fifteen flowers. Last year when I visited the

Royal Botanic Garden at Glasnevin, Ireland, I saw a most beautiful bed of these plants. At a distance it looked like a bed of dwarf Azaleas. Some of the species in this collection were Tricolor, Aurantiaca, Hæmantha, Simsii, etc.

Alstrœmerias can be grown either from seed or by division of the roots. The young seedlings require to be grown under glass for some time until they are strong before planting them in their permanent positions.

Botanic Gardens, Cambridge, Mass. *R. Cameron.*

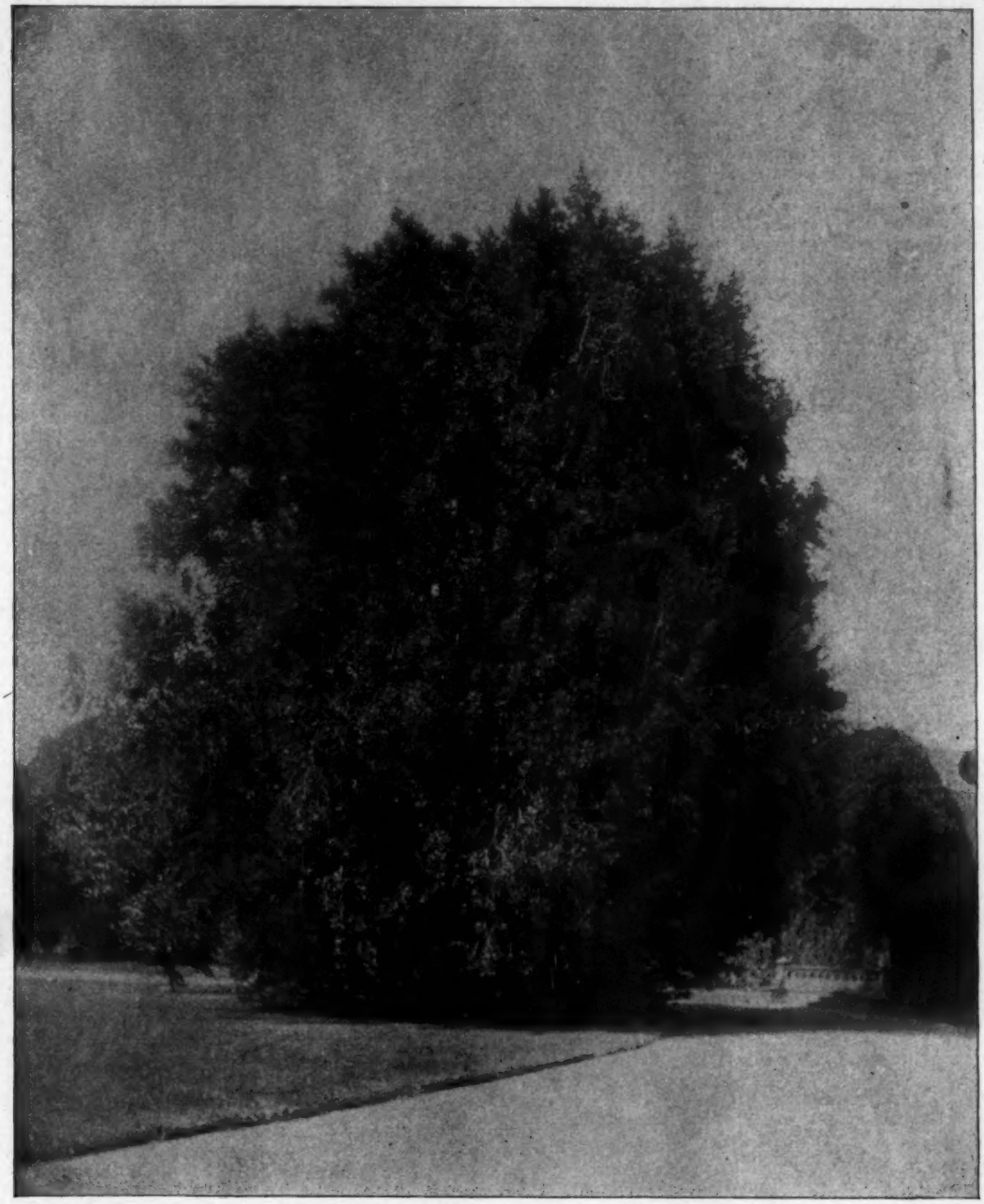


Fig. 60.—The California Locust (Umbellularia California).—See page 349.

The Harebells.—Campanula abietina bloomed on our rock-garden for the first time this spring. It is comparatively new, from eastern Europe, and is a neat tufted species, with airy panicles of violet-blue flowers. It is particularly valuable, as it adds another to an altogether too small a list of dwarf Harebells which will endure our severe winters. C. rotundifolia holds its own well and sows itself freely. It is a charming rock-plant, around which much sentiment clings since it is the true Bluebell of Scotland. C. gargarica planted this spring is blooming nicely, but it will need to be lifted in the autumn, or we shall lose. This and its hirsute variety are often grown in pots, and may be commonly seen in cottagers' windows in England, suspended, their trailing branches sometimes hanging one foot or more.

Wellesley, Mass. *T. D. H.*

Abortive Strawberries.—One cause of the formation of "nubbins" in Strawberries is, undoubtedly, lack of pollen. At the Cornell Station several Strawberry-blossoms were fertilized,

different flowers receiving unequal amounts of pollen. Perfect berries were formed by flowers in which all the stigmas upon the receptacle were treated. When only one-half of the stigmas was pollinated the fruit was smaller, the untreated half not having grown in any marked degree. What should have been the apex of the perfect berry was drawn over to the untreated half. Other flowers had about one-fourth of the stigmas fertilized. The berries produced by them were about as large as the preceding, but they were still more misshapen. The seeds were rather far apart, but otherwise the pollenized section presented a normal appearance. A seed would occasionally be missing, but this did not prevent the full development of that part of the receptacle. It was only where several seeds were wanting that a stunted growth was the result.

Cornell University. *E. G. Lodeman.*

Galium aristatum.—This plant was sold a few years ago in considerable quantities as the Woodruff (Asperula odorata), from northern Europe, to which it has, in fact, very little resemblance. It grows to the height of three feet or more, and has large open panicles of minute white flowers on very slender stems. These panicles, when cut and used with other flowers, are very effective in softening and uniting their colors, as they surround them like a fine spray or mist. The flowers of the Galium also have the advantage of a delicate fragrance which faintly resembles that of Buckwheat-blossoms. When once established the plant takes care of itself and soon makes a large clump, which keeps in bloom in this latitude almost throughout the entire month of July. Much better known than this plant is Gypsophila paniculata, which also has small thread-like stems and small white flowers, which can be used for a similar purpose. It commences to bloom two or three weeks earlier than the Galium. Rather later than the Galium comes the best of the hardy Statices (S. latifolia), which is practically everlasting. No one who has once tried these plants will ever consent to do without them, for, although not strikingly beautiful in the border by themselves, they add grace as cut flowers to almost any others with which they are grouped. With these hardy perennials should be mentioned the little annual Gypsophila muralis, which has exceedingly fine stems and leaves and tiny pink flowers, and is also most useful in producing similar effects. Nothing adds so much to the beauty of a bunch of Sweet Peas as a few sprays of this delicate plant.

Montclair, N. J. *S.*

Sobralias.

SOBRALIAS are not the most popular of the Orchids, but they are more thought of now than they were a few years ago, when the genus was seldom represented in collections. But they form a very interesting group, not difficult to grow, and although the flowers last but a few days in beauty, they open in succession, thus maintaining a prolonged display. One great charm of the genus is its distinct expression. The Sobralias are different from the majority of Orchids in flower and habit, and should therefore be grown if only for the sake of variety. The growth is slender, the leafage abundant, and each stem will bear on an average about six or eight flowers, varying, of course, according to the robustness of the specimen.

The Sobralias are terrestrial—that is, they belong to that group of Orchids which should be grown in pots, and the soil must be fairly open, so that the roots may run freely in it. Beginners in the cultivation of the Sobralia should provide plenty of root-space, larger even than in proportion to the plants, and for soil nothing is better than good fibrous peat, to which a moderate sprinkling of coarse silver sand has been added. The object of selecting somewhat lumpy peat is that the roots run freely through it, while the drainage should be liberal. It is not too much to fill pots, say, about eight inches in diameter, almost half full of crocks, those of smaller size to about one-third their depth, as without ample drainage it is hopeless to expect satisfactory growth or production of flowers. When the specimens become too large it is a very simple matter to divide them, and this affords a ready means of increasing the stock if so desired. The plants, when it is seen that they grow too large, should be turned out of the pots, the best portion of the old soil removed, and the tufts divided into moderate-sized pieces with the hand, as it is not advisable to use the knife more than is absolutely necessary. It is wise not to split them up too small, as it takes a long time for them to become established. The time for performing this work is the season at which repotting should take place—that is, when new growth is commencing—and it is one great point in repotting to make the new compost moderately firm, so that the water may moisten thoroughly the whole ball. This is most necessary, as during the season of growth it is essential to give an abundance of water, even at the resting-period some moisture being necessary. Large plants of Sobralias are very beautiful, the reed-like growth and fresh green leafage having a peculiar charm in contrast to the delicately beautiful flowers, that are without a vestige of formality.

There are several kinds, the most familiar of which is S. macrantha, an excellent exhibition plant, and introduced from Guatemala and Mexico as far back as 1846, the variety Splendens following three or four years afterward from the same land. The type is almost too well known to describe. It must be a poor collection that does not contain an example, the stems about six feet in height, the flowers sweetly scented, large, measuring fully six inches in diameter, and rich crimson and purple in color, relieved by the pale yellow spot in the centre of the bold lip. There are several varieties, and allusion has been already made to the form called Splendens, so named from its richly colored flowers, although we may say that shape is sacrificed to color, the flowers not having the form of those of the type. S. pallida has very large blooms, delicate rose in color, the lip having a faint trace of color, and in "Woolley's" variety a conspicuous trait is the dwarf growth, the flowers also of great beauty. A very handsome species from British Guiana is S. Liliastrum, the flowers of which are large, white and yellow, appearing during the present month. S. rosea is very dark in color, the flowers quite of a mauve tone, the lip crimson, white in the centre; while in S. xantholeuca, a species of striking beauty, they are very pale yellow, the frilled lip of a deeper tone.

This is an age of new Orchids, and recently we have had a notable addition to the Sobralias in S. Lucasiana, which was awarded a first-class certificate at the meeting of the Royal Horticultural Society on June 21st last. It was shown by C. J. Lucas, Esq., Warnham Court, Horsham, whose collection is of great interest. As regards habit, S. Lucasiana is much like any other Sobralia, the growth moderately tall, very bushy, and the flowers of characteristic shape. They are very compact in shape, the sepals white, faintly touched with rose, the petals broader, and deeper in color; the lip is of splendid shape, round, very broad across the central lobe, and rich purple-lilac in color.—*Gardeners' Magazine.*

The Forest.

The Forest as modified by Human Agency.—I.

FROM an introduction to a course of forestry-lectures, delivered before the University of Edinburgh in their session 1891–92 by Colonel Bailey, University Lecturer, Conservator of Forests and Director of the Indian Forest School, printed in part ii., vol. xiii., of the *Transactions of the Royal Scottish Arboricultural Society*, which has just reached us, we have made the following extracts, which appear to be of general interest as bearing on the question of forest-preservation in the United States:

"In early times the greater part of the dry land was, no doubt, covered with trees and shrubs of various kinds, each kind flourishing and maintaining itself in the locality best suited to its special requirements. As the older trees fell to the ground their places were taken by others of the same or of associated species, which grew up in the openings thus afforded to them, and an unbroken succession of trees and shrubs was in this manner maintained; for at that remote period but few of those destructive agencies were at work which have raised forestry to a science.

"What is the foremost among these destructive agencies? Unquestionably man.

"It is no doubt true that natural phenomena, such as storms of wind, have always occurred from time to time; but the forest-growth would, in most cases, surely, if slowly, re-establish itself after each visitation, and the damage done by four-footed animals, insects and noxious fungi would not be likely to make much impression on the vast extent of forest which then covered the earth's surface. The human population of the world was small, and the requirements of men were by no means so varied and extensive as they are at present. But as population increased, man had to extend the small patches of cultivation which were the scene of his first efforts in the art of agriculture, and he wanted timber and fire-wood for domestic use. He also needed grazing-grounds for his flocks and herds. Then, in course of time, he began to build better houses with larger timber; he made boats and ships; and later on he constructed railways, and developed numerous in-

dustries which consumed vast quantities of wood of all species, qualities and sizes; at the same time he largely extended his cultivation and increased his flocks and herds; and before every one of these advances portions of the natural forest went down and disappeared forever from the face of the land. But the process was a very gradual one, extending over many centuries. It proceeded slowly at first, and not until comparatively recent times did the country begin to assume its present appearance. It is not so very long ago that the road from London to Edinburgh was an unsafe one to travel over in consequence of the gangs of robbers who found shelter in the thick forests through which it passed. Do not misunderstand me to pretend that these changes from denudation have in general been for the worse; you do not require me to tell you that up to a certain and, indeed, a very advanced point they were very much for the better.

"Long before this stage of development had been reached, however, a time had come when it was found impossible for every one to continue to help himself with a free hand; claims to ownership of forest and waste lands had been set up, and established by the law of might, and some sort of restrictions had begun to be enforced. But these were quite inadequate to arrest the progress of the destruction of the natural forest, which at length reached a point at which the supply of forest-produce became insufficient to meet the requirements of the population; and measures then began to be taken not only to secure some tracts of forest from further encroachment, but also to increase the wood-bearing area by sowing and planting. But it is not to measures of this nature that many of our largest forests owe their existence at the present day. Their continued maintenance is due rather to the protection they received under strict laws for the preservation of game than to any endeavor to guard them for the sake of the timber they could yield. The New Forest in Hampshire is a good example of this, and the same may probably be said of the Windsor Forest and of the Forest of Dean in Gloucestershire, as well as of others in Scotland.

"It will easily be understood that the countries in which civilization advanced with the most rapid strides were those from which the natural forests disappeared the soonest; and at the present time these islands have a smaller percentage of wood-producing area than is found in any other European country, with the solitary exception of Denmark. The actual proportion is as follows:

Russia,	40 per cent.	Greece,	14 per cent.
Sweden,	34 "	Spain,	7 "
Norway,	29½ "	Belgium,	7 "
Germany,	26 "	Holland,	7 "
Turkey,	22 "	Portugal,	5 "
Switzerland,	18 "	British Isles,	4 "
France,	17 "	Denmark,	3½ "

The average is 29½ per cent., and includes orchards and isolated trees in parks, hedge-rows and elsewhere.

"Countries which, like ours, have a very small wooded area of their own, have to supplement their home-grown supplies of wood from other countries which are still able to produce more of this commodity than their population can consume; and, on reference to Dr. Schlich's *Manual of Forestry*, I find that the United Kingdom annually imports

Timber to the value of about	£15,000,000
Minor forest-produce to the value of about	8,000,000
Total, about	£23,000,000

"These facts have not, up to the present time, led to any very great amount of inconvenience: (1) because our insular position affords us great facilities for the importation of timber; (2) because we have a plentiful supply of coal; (3) because our climate does not demand modifications of the nature which extensive forests are able to effect, nor do we, as a rule, suffer from any deficiency of the water-supply in our wells, springs and streams; and (4) because the geological formation and the configuration of these islands, and the climatic conditions under which we live, do not render it as necessary as it is in many other countries, that large areas should receive the protection against the effects of violent and continuous falls of rain, which is so well afforded by a crop of trees and shrubs.

"It is true that a part of Scotland has recently suffered severely from floods; but the effects of these floods bear no comparison with those produced by denudation in some other parts of the world, where the rain is heavier, the sun hotter, and the rock and soil are less consistent than with us.

"While employed by the Secretary of State for India at the French Forest School at Nancy, I visited the southern French Alps, which have been subjected to excessive grazing, and from many parts of which not only the trees and shrubs, but even the very grass had disappeared. The surface is, therefore, no longer bound together by roots; and when the heavy semi-tropical rain falls directly upon it the soil, and subsequently the loose rock, slips down into the valley below. The water charged with these substances runs off with great rapidity, and suddenly fills the torrent-beds. These latter soon become deepened by the 'scour,' when their sides, deprived of support, fall in; and the effect of this action, going on throughout the whole system of water-courses which traverse the mountain-sides, is that, over enormous areas, the upper strata of the soil, with its fields, houses, and even villages, are borne down into the valleys, and the whole region, which presents to the eye little but a series of unstable slopes of black marl, has an extremely desolate appearance. But the damage does not stop here; for the débris is carried down to the comparatively level valleys and open country below, where it is deposited over fields, roads, railways and villages, thus doing an enormous amount of harm.

"In order to mitigate these terrible evils, the French government has undertaken the vast enterprise of regulating the torrent-beds by means of engineering works, and of afforesting the mountain-slopes over an area of more than a thousand square miles, including nearly two thousand linear miles of torrent-beds. The cost of such an undertaking is, of course, very great, but the circumstances warrant the expenditure.

"A very similar condition of things prevails in the Hoshiarpur District of the Punjab, on which I had a short time ago to submit a report to the government of that Indian province. I have conversed with men who remember this range of hills covered with trees and tall grass, which were the home of the tiger and other wild animals; but now there is hardly a blade of grass to be seen, and the hills are gradually being washed away and deposited on the plains below. I am told that the bed of the Mississippi is being blocked by sand and soil brought down from the mountains of the 'Far West,' in consequence of the extensive clearings that have been made there during recent years.

Correspondence.

Vernon Park, Philadelphia.

To the Editor of GARDEN AND FOREST:

Sir,—Some time ago I promised to give an account of what we were doing about Vernon Park, but as usual there is a struggle with some personal interest when any good thing for the public is to be accomplished, and in this case we have had on our hands a lawsuit with some disaffected citizens. The case is now decided, however, in the city's favor, and on the 1st of July we placed the property in charge of a city superintendent.

This little park contains about eight acres, and among the areas for small parks we have taken, it is second in importance only to Bartram's Garden. Being in the heart of the Germantown district, or the twenty-second ward of the city of Philadelphia, it is just where the lover of trees can have an opportunity to see some grand old specimens, and convenient to the poor people and their children, who wish a breath of fresh air and an open space to enjoy themselves in. Before this place fell, providentially, into the hands of the Wisters, who have preserved it, it was owned by an old Philadelphia banker named Meng, who was among the very early patrons of gardening hereabout. He was the chief patron of Kin, who was one of the first botanical collectors in the then dangerous wilds of America, though, singularly enough, his name has never been honored as have those of Rafinesque, Nuttall, Lyon, Pursh and others, possibly because he was in a measure isolated from the public by his German connections. He appears to have been sent here by some patrons from Germany, and his American specimens are still preserved in the Botanical Museum at Berlin, as I am advised by Professor Krug. Some of the first specimens of our rarer Alleghany trees were introduced here by him. Undoubtedly the earliest cultivated Magnolia macrophylla is here, and it was brought here by Kin. It was, unfortunately, struck by lightning some years ago, and the exposed wood down the trunk of the tree which was not painted to keep out the water has decayed from one side. I think, however, the good gardener, who, in these days of political appointments, has been fortunately selected to superintend these grounds, will arrest further decay, and that the great wounds will heal over, a result which the good tree is now bravely trying to effect.

The park is not paid for. When I first began this small-park campaign on our city my plan was to negotiate with the owners of the ground so as to make the best bargain possible for Philadelphia. For the first little square we took, that of Weccacoe, the owners demanded $20,000. It was a small plot, but I had it taken so as to make a precedent of getting possession of abandoned grave-yards. I and my colleagues, five of us, who were a Committee of Councils, considered $10,000 an adequate payment, and we therefore had an appropriation of this sum made, and offered it to them. The owners finally took this amount, and yet it was freely stated that part of this money was needed to defray the "cost of getting the matter through Councils"; and this accusation was spread by the attorney of the owners, who is said to have received $1,200 for his services. It was very evident that, no matter how honestly public business of this kind is conducted, there will always be a suspicion that there is a job in it. Since that time I have changed the practice, and land is now taken by award of a jury regularly appointed by the court, and the money to pay for these lands is raised by the usual process of mandamus on the city treasury. This is the only way to protect ourselves against ungenerous accusations. Vernon Park will probably cost nearly a quarter of a million of dollars, but public-spirited citizens have already subscribed one-tenth of the sum in view of its advantages and size.

I once looked upon these breathing-places for the poor in large cities with the eye of an artist, valuing them primarily as spots of beauty and ornament to the city. It was my desire that they should all be educators in taste and landscape-art. I still would have them beautiful, provided this did not interfere with the real needs of the poor. I look upon them now as playgrounds and places where all kinds of physical recreation can be enjoyed, and I leave the details of garden beauty and the ornamentation of the city to take a subordinate place.

Fortunately for our Vernon Park, while lovers of the beautiful in nature, as well as those who delight in historical associations, will have full satisfaction in it, about one-fourth of the whole space is open lawn, which will be so arranged that the children can romp and play on it and enjoy themselves as they will.

Germantown, Pa. *Thomas Meehan.*

Gardens in Northern Germany.

To the Editor of Garden and Forest:

Sir,—As the Forest Department of the German cities is a distinct branch of the municipal government (see Garden and Forest for May 4th, p. 214), so is the Field Department also a separate organization, in which is included the official oversight of the suburban gardens, which are found in every direction, either adjacent to the main promenades and shaded walks, or further away, where they were established often many years ago. No one ever hears it said in those cities, "I am going to make a garden this year." A piece of land once a garden is always a garden there, and by good management it increases in value yearly, and is kept in the family for generations. The country abounds in numerous lakes and rivers, great and small, and care is generally taken to place the gardens close to the water's edge, so that steps may lead down to it, or a platform extended over it, and provided with seats for the members of the family. Here angling is also a favorite pleasure. The waters abound with fish of all kinds, and a floating fish-box is a certain and necessary article in the household, so that fish may be kept fresh in their natural element; nobody eats fish which are purchased after they are dead. Laws in relation to the taking of fish out of the waters are strictly enforced, so that the future generations may also have an abundant supply. The largest fish are not taken, but left in the waters for propagation.

The fertility of the garden-soil is kept up by carefully saving all waste and every fertilizing product. The waters are not polluted by sewage. The gardens are generally divided by hedges, but of late wire fences are also much used because they are cheaper and need less care. The wealthy and more prominent people have houses built where garden-parties are held; others have only small, but quite ornamental, cabins or rustic arbors for holding their tools in security when not in use. The land is spaded, for the trees and different berry and flower bushes will not permit the use of horse and plow. A family garden contains little or no turf; every bit of ground is made to produce its utmost. All beds are laid out in straight lines, and the various vegetables are set where each can secure the amount of sunshine and shade it needs. Most people have two gardens, one of them called the wet garden, where they raise their cabbage and vegetables for winter's use. Often a part of those outlying gardens is sowed with Flax, also for family use.

The work is mostly done by women. In fact, their life and that of the children, when they are not at school, is practically spent in summer in the garden. Without any special effort the younger generation in this way becomes acquainted with all kinds of practical garden-work and knowledge of natural history. The natural sciences, and especially botany, are taught in the public schools, and when a plant or insect unknown to a child or its parent is discovered it is preserved, and the next day sent to school to be identified by the teacher. Woe to him if he cannot give the needed information. His whole influence and reputation are lost. This is a serious matter, for schools are not free, and the parents, who have to pay for the tuition of their children, are keenly interested and anxious to find out whether they are getting their money's worth of instruction. My observation in this country leads me to suspect that the people most benefited by free schools appreciate them but slightly, considering, perhaps, that anything which costs nothing must be worth little.

Hartford, Conn. *Wilhelmine Seliger.*

Wintering Half-hardy Plants.

To the Editor of Garden and Forest:

Sir,—The possibility of growing out-of-doors many more things than we do by protecting them in winter, as suggested by Professor Massey, is an interesting subject, and I have no doubt that many plants could be added to those now cultivated in almost all localities. There are here specimens of the Melia Azederach and Bumelia tenax, which were coaxed along at first by a little shelter in winter, and which are now taking care of themselves. Last winter the following plants were left out without any protection beyond that afforded by large shrubbery, and all are thriving to-day: Cleyera Japonica, Leycesteria formosa, Choisia ternata, Ilex Cornuti. Figs and Pomegranates. The Cleyera and Ilex were entirely unhurt, Choisia and Pomegranate partly killed back, and Figs killed to the ground. No covering of any kind was given to any of these plants, and it is probable that a little protection would have saved them all. Mrs. Dandridge speaks of the Abelia rupestris doing well at Washington. I may add that it thrives at Germantown. Where shrubs are grouped as at Washington and sheltered by large buildings many partly tender kinds can be easily carried through the winter. I have there seen fine Aucubas, English Hollies, English Laurel, Abelias, evergreen Magnolias, Acacia Julibrissin, and similar plants massed together, one protecting the other, and all thriving because of this protection.

Germantown, Pa. *Joseph Meehan.*

Recent Publications.

The Cultivated Native Plums and Cherries. Bulletin 38, Cornell University Agricultural Experiment Station, Horticultural Division. L. H. Bailey. Pp. 1–73; 14 figures.

In his introduction to this important paper, in which are printed the results of six years of careful study, Professor Bailey tells us that "since the introduction of the Wild Goose Plum, some forty years ago, there has been a steadily growing interest in the amelioration of our native Plums." Of these at least one hundred and fifty named varieties are now recognized by pomologists; and it was the attempt to classify these and refer them to wild types which led Professor Bailey to undertake a critical study of all the Plums of probable American origin found in our gardens and orchards.

Eastern North America contains six species of true Plums which are either native to the soil or have become entirely naturalized. Of these nothing need be said now of Prunus Alleghaniensis, a local Pennsylvania species, or of the southern P. umbellata, for, although the fruit is collected from the wild trees of these species and is sold in the markets of the regions which they inhabit, they are not known to have given rise to any recognized garden varieties. Of P. maritima, the Beech Plum of the Atlantic coast, little, too, need be said, for only a single variety of this plant is cultivated for its fruit, and this, apparently, is of no great value, and is hardly superior to the fruit produced ordinarily by the wild plants of this species. The other cultivated Plums derived from eastern American species, or from naturalized species, Professor Bailey arranges as follows:

a. The Americana group.
b. The Wild Goose group.
c. The Miner group.
d. The Chickasaw group.
e. The Marianna group.

In his first group the author arranges "the hardy strong-growing varieties which have come from the north-west, and which are characterized by a firm, meaty, usually compressed, dull-colored, late fruit, with thick, and usually very tough, glaucous skin, and large, more or less flattened, stone, which is often nearly, or quite, free, and by large obovate, thick, veiny, jagged dull leaves." The plants of this group are referred to the P. Americana of Marshall, with which Professor Bailey unites the so-called Canada Plum, which Aiton described a century ago under the name of P. nigra. It is true that some of the cultivated varieties which obviously belong in this group show in the herbarium characters which are intermediate between those of the wild types of the Canadian Plum and of the species of the middle, southern and western states, upon which Marshall bestowed the name of P. Americana; but as the two trees appear growing wild, one in the north and the other in the south, they differ so constantly in habit, in the time of flowering, in the size of the flowers, in the character and covering of the calyx-lobes, and in the form of the stone of the fruit, that it is impossible to believe that they can be specifically united from the point of view of the botanist.

In the Americana group forty-five varieties, now pretty generally distributed in cultivation, are described. The plants of this group are said to succeed best in the northern states of the Mississippi valley, and they are the only ones which are able to withstand the climate of the northernmost limits of the native Plum-belt, as Wisconsin, Minnesota and Iowa. There are some varieties, however, which succeed as far south as Texas, although in the Atlantic states the varieties are not grown far south.

We suspect that the varieties that succeed in the extreme north-western states will be found to have sprung from the Canadian Plum, which was brought into New England at a very early day, probably by the Indians, and where it has now become established in many places in which it is not probable that it grew naturally. It is possible, therefore, that this tree was carried by the Indians or the early voyageurs into the region beyond the Great Lakes, and that it was from these introduced plants that some of the varieties now esteemed by the pomologists of Wisconsin and Minnesota have descended. Certainly it is hard to find any trace of the P. Americana of Marshall in such trees as Weaver and Purple Yosemite, while in De Soto, Cheney and Forest Rose it is difficult to discover the blood of P. nigra.

The Wild Goose group, which is considered by Professor Bailey "the most important group of native Plums, includes varieties characterized by strong wide-spreading growth and mostly smooth twigs, a firm, juicy, bright-colored, thin-skinned fruit, which is never flattened, a clinging, turgid, comparatively small, rough stone, which is sometimes prolonged at the ends, but is never conspicuously wing-margined, and by comparatively thin and firm, shining, smooth, flat, more or less Peach-like, ovate-lanceolate or ovate long-pointed leaves, which are mostly closely and obtusely glandular-serrate, and the stalks of which are usually glandular." The species from which this group is evidently derived has only been recently recognized by botanists, and it is Professor Bailey himself, in a recent issue of this journal, who raised to specific rank, under the name of P. hortulana, the Plum-tree of the middle Mississippi region which earlier botanists had confounded with the Chickasaw Plum, a plant of a more southern origin.

In the Hortulana group Professor Bailey finds two more or less clearly marked types, one characterized by thin and very smooth Peach-like leaves, which are finely and evenly serrate, and the other by thicker, duller and more coarsely and irregularly serrate leaves. In the first of these groups is placed the Wild Goose Plum, which was first brought to notice by James Harvey, of Columbia, Tennessee. The history of this variety, which is the most popular probably of all the native Plums and the one which has done more than any other variety to extend their cultivation, is, as Professor Bailey tells it, as follows: "The Wild Goose was first brought to notice by James Harvey, of Columbia, Tennessee. Some time before 1850 a man shot a wild goose near Columbia, and on the spot where the carcass was thrown this Plum came up the following spring. It was introduced about 1852 by the late J. S. Downer, of Fairview, Kentucky. This is the first Plum introduced into general cultivation, although the Miner was first known and named." Plants of the Wild Goose type, as a whole, appear to be best suited to the middle latitudes, being grown with satisfaction from Illinois and Indiana, and the southern part of Michigan and New York to Maryland, Virginia and Tennessee, and in the south-west to Texas. The varieties which are most highly prized are Golden Beauty, Indian Chief, Missouri Apricot, Moreman, Wayland and Wild Goose.

The Miner Group, as defined by Professor Bailey, "includes a few anomalous varieties, which appear to be intermediate between P. hortulana and P. Americana. They may be an offshoot of P. hortulana, or it is possible that they constitute a distinct species. The Miner is particularly well marked, but there are others which it is sometimes difficult to separate from P. hortulana." To this group are referred Clinton, Idol, Miner and several others. It is described as a strong and hardy race, which is particularly adapted to the northern limits of the cultivation of the Hortulana family. The varieties are much alike. The Miner is the most popular member of the group, and it succeeds even in northern Illinois. In New York the varieties ripen from late September to late October.

The members of the Chickasaw group, derived from the so-called Chickasaw Plum, the P. angustifolia of Marshall, differ from the plants of the Wild Goose group "by a more slender, spreading and zigzag growth, usually smaller size of tree, red twigs, by smaller, lanceolate or oblong-lanceolate, very closely serrate shining leaves, by early small flowers, which, upon old wood, are densely clustered upon the spurs, and by an early red or rarely yellow and more or less spotted translucent fruit, the flesh of which is soft, juicy, and more or less stringy and very tightly adherent to the small, broad, roughish stone." Professor Bailey is of opinion that the type of the Chickasaw Plum grows wild from southern Delaware to Florida and westward to Kansas and Texas, although it has usually been considered an introduced plant in the eastern states, where it is generally found growing in the neighborhood of dwellings or along the borders of cultivated fields —that is, in situations to which it might have been expected to escape from gardens. Michaux, the French botanist, who resided in South Carolina toward the end of the last century, was told there that the Chickasaw Plum had been brought from the West Indies, and there are many indications which point to the southern origin of this plant, although it is fair to say, in support of Professor Bailey's theory, that it is not known anywhere outside the limits of the United States. We should suspect, from its inability to support cold and its truly domestic habits, that it had been brought into the southern states, perhaps, before the coming of Europeans from the high lands of Mexico or from some Andean region, although, if this had been the case, it is remarkable that it has never been found growing wild in those countries. It is the small-sized fruit of the wild or naturalized bushes of this species which is sold in the markets of the middle states as Mountain Cherries. Eighteen varieties of this group are described by Professor Bailey, who finds them particularly adapted to the southern states, the leading varieties being Caddo Chief, Jennie Lucas, Lone Star, Pottawattamie and Yellow Translucent.

In the Marianna group are placed the Marianna and the De Caradeuc Plums, and probably also the Hattie. These form a distinct class, "differing in habit of tree, very early flowering, elliptic-ovate, rather small and finely serrate dull leaves, glandless leaf-stalks, and soft spherical very juicy plums of a 'sugar and water' character, and broad ovate stones which are scarcely pointed and are prominently furrowed on the front edge." These plants, which have long perplexed pomologists, Professor Bailey believes are derived from Prunus Myrobalan, an Old World species, probably of eastern origin, although long considered by European botanists a doubtful plant, and once considered an inhabitant of the New World. It is evident, however, that it is not American, although it has been cultivated in this country for many years, especially as a stock upon which to graft the varieties of the Old World P. domestica, and it is doubtless from such stocks that the varieties of this group have been derived.

Professor Bailey describes and figures, too, the dwarf Cherries, which either for the beauty of their flowers or the promise of their fruit are now attracting attention among horticulturists; he explains the methods best suited for cultivating and propagating our wild Plums and Cherries; he discusses the fungal diseases which infest them, and the insects which prey upon them, and tabulates the estimates obtained from representative growers in all parts of the country of the value of the leading varieties of Plums.

Pomologists and botanists will find in this paper a mine of information, and the author has earned their thanks for cutting what he very rightly describes as "the hardest knot in American pomology." Certainly before the result of his investigations was made known no group of plants cultivated in America was so inextricably confused or so difficult to understand as the American Plums, and in future, although much additional information will, no doubt, in time be gathered about them as they are more generally appreciated and cultivated, every serious pomologist must begin his investigations

of these plants by the study of Professor Bailey's paper, which is one of the most important contributions to American garden literature which has appeared in recent years.

Notes.

A correspondent of the *American Florist* writes that Mr. Robert Craig considers Mrs. Whilldin the best early Chrysanthemum. Mr. W. K. Harris, on the contrary, thinks that Eldorado is the best market flower of the early yellow varieties.

Governor Russell, of Massachusetts, has appointed Charles Francis Adams, of Quincy, Philip A. Chase, of Lynn, and Wm. de las Casas, of Malden, members of the Metropolitan Park Commission, which is constituted to report to the next Legislature a plan for a system of ample open spaces for the cities and towns in the vicinity of Boston.

We have a note from Messrs. Thomas Meehan & Sons saying that if our correspondent quoted on page 348 had sent for all the catalogues advertised in our columns he would have found that the Prairie Rose was on sale at one establishment at least. Rosa setigera has been offered for many years by Thomas Meehan & Sons, of Germantown.

Mr. A. J. Drexel, of Philadelphia, has recently presented to the Horticultural Commissioners of the World's Fair a remarkably fine specimen of Licuala grandis from his private collection. The plant in question is in a sixteen-inch pot, and carries twenty-eight leaves, and is without doubt one of the finest examples of this rare Palm in the United States.

Young trees of Robinia viscosa have made a strong growth this year on account of the abundant rainfall, and the new shoots are now bearing a second crop of racemes of bright rose-colored flowers. This tree seems to be more popular in European gardens than it is in its native country, but its excellent habit, good foliage and attractive flowers commend it where trees of medium size are needed.

The diploma of the German Society for the advancement of horticulture has been bestowed upon Herr Kittel, of Eckersdorf, for a hybrid Vriesea (V. hybrida pommer Escheana), the offspring of V. psittacina Morreniana and V. splendens, which the judges described as superior to either of its parents, and in both habit and flower an exceptionally interesting novelty, adapted to cultivation by amateurs as well as florists.

At this season, when shrubs in flower are rare, Cytisus nigricans makes a very bright show with yellow pea-shaped blossoms on its erect and slender branches, which rise to the height of eighteen inches or more above the ground. It has been long cultivated in the gardens of Europe, but for some reason it is still rarely seen in America, although it is perfectly hardy and very desirable among dwarf-growing shrubs, of which we have none too many.

Baron Todaro, Professor of Botany in the University of Palermo and Director of the Botanic Garden of that city, died on the 18th of April, and has been succeeded by Dr. Hermann Rast. Todaro is known by his publications on various species of the Cotton-plant, on Agaves, Aloes and other plants cultivated in the Palermo garden. In addition to his scientific pursuits, he was a lawyer of reputation, and was actively interested in the political affairs of his country.

In the ancient days of Rome a bride always gathered with her own hands the flowers which were to form her wreath. Ordinary torches were made of Fir or Pine wood, but the torches carried in wedding processions were of the wood of the White Thorn, as this tree was sacred to Ceres and was considered a talisman against evil; and, upon entering their home, the newly married pair knelt together by the hearth and lighted their fire with one of the White Thorn torches.

The Horse-chestnut and our native Buckeyes are among the early-blooming trees, but the Dwarf Buckeye (Æsculus parviflora) has the advantage of blooming when shrubs in flower are not abundant. This plant, which is a native of our southern Alleghany region, attains a height of from six to eight feet, and spreads in a few years to make a bush ten feet in diameter, and from this mound of bright green foliage rise in late July hundreds of tall cream-white flower-spikes which give the shrub a most striking appearance.

"No effort to create an impossible or purely ideal landscape," says Mr. Lafcadio Hearn, "is made in the Japanese garden. Its artistic purpose is to copy faithfully the attractions of a veritable landscape, and to convey the real impression that a real landscape conveys. It is, therefore, at once a picture and a poem; perhaps even more a poem than a picture. For, as nature's scenery, in its varying aspects, affects us with sensations of joy or of solemnity, of grimness or of sweetness, of force or of peace, so must the true reflection of it in the labor of the landscape-gardener create not merely an impression of beauty, but a mood in the soul."

Former attempts to transplant Cocoanut-trees from the tropics to the greenhouses of San Francisco have been unsuccessful, but the authorities of Golden Gate Park hope for a better result with a fine specimen which recently arrived there. It came as a present from Queen Kapiolani of the Hawaiian Islands, and was the best specimen which could be procured within easy distance from the port of Honolulu, the object being to secure a fruiting tree not too tall for transportation. It is about thirty feet in height. Its branches were so carefully packed in sacking that neither the leaves nor the fruit were injured, and its roots were protected by a strong box. It was brought by horse-power from its native spot to the coast, and again from the wharf at San Francisco to the park. Great haste had to be used to prevent its being chilled by the cold Californian winds, but in three hours after its arrival at the park it was safely housed in the main gallery of the greenhouse. It is the largest example yet brought to San Francisco, but promises to live and thrive.

An article on the Great Pine of Japan, called Dai Matsu, which stands on the coast of the inland sea of Biroa, about three miles from Otsu, was recently published in *Gartenflora*. It says that the priests who have charge of the tree declare that it was mentioned in the records of their cloister eight hundred years ago, and that it was planted in the year A. D. 675. It is counted among the eight wonders of Japan, and its singular aspect, as it stretches its long branches far out on every side over a scaffolding formed by more than three hundred poles, has been pictured in many books of travel. Although it is fully exposed to the wind, and although its trunks and branches bear more than one lightning-scar, it is still vigorous, and only a gradual thinning-out of its foliage bears witness to its great antiquity. At two feet above the ground the diameter of its trunk is fifteen feet nine inches; its height is eighty-four feet, and the diameter of its widely-stretched crown is 242 feet. Four houses formerly stood among its branches, but two of them were ruined in a great storm a few years ago. The other two are still largely resorted to by supper-parties on summer evenings, and the Japanese take especial delight in listening to the dripping of rain into the water from the boughs as they overhang the sea. The writer of this article could not definitely ascertain to what species of Pine the famous tree belongs, but says it is possibly an example of Pinus densiflora, or more probably of P. Thunbergii.

"The art of the Japanese gardener," writes Sir Edwin Arnold, "had turned our little plot of a couple of acres into the appearance of a large and various pleasaunce, with miniature hills—from which you could see the towering snows of Fuji San—fish-ponds, rock-works, trellised arbors, and clumps of flowers and bushes, which gave us an unbroken succession of floral wealth. Scattered about the grounds were stone lamps called Ishi dōrō, and grotesque demons, and quaint water-cisterns in stone with Chinese inscriptions. Around these first came into bloom, defying snow and frost, the beautiful red and white and striped Camellias. When these had fallen the white and pink and rose-red Plum-flowers filled the eye with beauty. Afterward the Azaleas blazed, like burning bushes all round the Lotus-pond; and these were followed by a delicious outburst of pale, rose-tinted Cherry-blossoms, making an avenue of beauty and glory all the way from the Shinto temple at our gate to the front door, where were suspended the little, indispensable, but useless fire-engine and the bronze gong on which visitors beat with a little wooden hammer to announce their arrival. The Wistaria and a second crop of Camellias, and then some red and yellow roses, took up the running, and the Maple-bushes came out resplendent with blood-red leaves; after which there were purple Irises and Callas flowering by the fish-pond, with orange and red Lilies brighter than the gold-fish swimming in it, and the lawn became covered with a pretty little flower called the Neji-bana, the pink buds of which, growing diagonally and reaching round to get the sunlight, twisted the stem into the shape of a corkscrew. Thus, along with the sprays of the Firs and Loquats and ornamental shrubs, our gardener — whom we christened the 'Ace of Spades,' out of 'Alice through the Looking-glass,' and who wore a blue coat with white dragons upon it—was never destitute of delightful material wherewith to exercise the high art of decorating our rooms after the great æsthetic Enshin fashion."